



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Re: Application of: **Reinhold MEIER et al.**
Serial No.: 10/588,538 Confirmation No.: 8360
Filed: August 7, 2006
For: **METHOD FOR CONNECTING COMPONENTS**
Art Unit: 3742
Examiner: Sang Yeop Paik
Customer No.: 23280
Atty. Docket: 5038.1035
Customer No.: 23280

Mail Stop: APPEAL BRIEF – PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

June 21, 2010

APPELLANT'S BRIEF UNDER 37 C.F.R. § 41.37

Sir:

Appellant submits this brief for the consideration of the Board of Patent Appeals and Interferences (the "Board") in support of their appeal of the Final Rejection dated December 8, 2009 in this application. The statutory fee of \$540.00 for filing an appeal brief is paid concurrently herewith.

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REAL PARTY IN INTEREST

The real party in interest is MTU Aero Engines GmbH, a corporation having a place of business in Muenchen, Germany and the assignee of the entire right, title and interest in the above-identified patent application. The invention was assigned to MTU Aero Engines GmbH by an assignment from inventor Reinhold MEIER. The assignment was recorded on August 7, 2006 at reel 018180 frame 0266.

I. RELATED APPEALS AND INTERFERENCES

Appellant, his legal representatives, and assignee are not aware of any appeal, interference or judicial proceeding that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

II. STATUS OF CLAIMS

Claims 6 and 8 to 11 are pending. Claims 6 and 8 to 11 have been finally rejected as per the Final Office Action dated December 8, 2009.

The rejections to claims 6 and 8 to 11 thus are appealed. A copy of pending claims 6 and 8 to 11 is attached hereto as Appendix A.

III. STATUS OF AMENDMENTS AFTER FINAL

Claim 6 was amended after the Final Office Action and the amendment has been entered as per the Advisory Action dated March 24, 2010. A Notice of Appeal was filed on April 8, 2010 and received by the U.S.P.T.O. on April 12, 2010.

IV. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 6 recites a method for joining at least two gas turbine components under dynamic load (see, e.g. paragraphs [0011], [0019] and 10, 11 in Fig. 1) comprising:

aligning the at least two gas turbine components relative to one another in an aligned position (see, e.g. paragraph [0012] and 10, 11 in Fig. 1);

joining the at least two gas turbine components together in the aligned position by an auxiliary weld (see, e.g. paragraph [0012] and 12 in Fig. 1); and

welding the at least two gas turbine components using laser powder build-up welding to form a separate weld (see, e.g. paragraph [0012] and 13 in Fig. 1) to join said at least two gas turbine components together (see, e.g. paragraph [0013]).

Dependent claim 9 (argued separately) recites the method as recited in Claim 6, wherein the at least two gas turbine components (see, e.g. paragraph [0016] and Fig. 2) comprise at least two rotor discs (see, e.g. paragraph [0016] and Fig. 2) of a compressor rotor or a turbine rotor (see, e.g. paragraph [0011] and Fig. 2), each of the at least two rotor discs including an axially extending flange (see, e.g. paragraph [0016] and 14, 15 in Fig. 2); and wherein the step of welding joins together the at least two rotor discs at said axially extending flanges of said at least two rotor discs (see, e.g. paragraph [0016] and 16, 17 in Fig. 2).

Dependent claim 10 (argued separately) recites the method as recited in Claim 6, wherein the at least two gas turbine components (see, e.g. paragraph [0016] and Fig. 2) comprise at least two rotor discs (see, e.g. paragraph [0016] and Fig. 2) of a compressor rotor or a turbine rotor, each of the at least two rotor discs including an axially extending flange (see, e.g. paragraph [0016] and 14, 15 in Fig. 2);

wherein the step of aligning includes axially aligning the axially extending flanges (see, e.g. paragraph [0016] and Fig. 2);

wherein the step of joining comprises forming the auxiliary weld at an intersection of the axially extending flanges (see, e.g. paragraph [0016] and Fig. 2);

and wherein the step of welding joins together the at least two rotor discs at said axially extending flanges of said at least two rotor discs (see, e.g. paragraph [0016] and 16, 17 in Fig. 2).

Dependent claim 11 (argued separately) recites method of claim 10, wherein the axially extending flanges (see, e.g. paragraph [0013] and 10, 11 in Fig. 1) of said at least two rotor discs

(see, e.g. paragraph [0016] and Fig. 2), when aligned, form a pool crater (see, e.g. paragraph [0013] and Fig. 1) for the laser powder build up welding (see, e.g. paragraph [0013] and Fig. 1).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 6 and 8 to 11 should have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Whether claim 6 should have been rejected under 35 U.S.C. §103(a) as being unpatentable by US 5,245,155 (Pratt et al.) or US 2004/0191064 (Guo), in view of US 2,288,433 (Boettcher et al) or US 2,662,277 (Stone).

Whether claim 8 should have been rejected under 35 U.S.C. §103(a) as being unpatentable over Pratt et al. or Guo, in view of Boettcher et al. or Stone as applied to claim 6, and further in view of US 4,224,499 (Jones) or US 2004/0169022 (Mega).

Whether claim 9 should have been rejected under 35 U.S.C. §103(a) as being unpatentable over Pratt or Guo in view of Boettcher or Stone as applied to claim 6, and further in view of US 2,492,833 (Baumann) or US 2,200,287 (Lysholm).

Whether claims 10 and 11 should have been rejected under 35 U.S.C. §103(a) as being unpatentable over Pratt et al. or Guo in view of Boettcher or Stone as applied to claim 6, and further in view of Baumann or Lysholm.

VII. ARGUMENTS

Rejections under 35 U.S.C. §112, Second Paragraph

Claim 6 and 8 to 11 were rejected under 35 U.S.C. §112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 was been amended to provide proper antecedent basis, and the Advisory Action entered the amendment. It is assumed the rejection is overcome, but the Advisory Action did not so indicate.

Withdrawal of the rejections to claims 6 and 8 to 11 under 35 U.S.C. §112, second paragraph, is respectfully requested.

Rejections under 35 U.S.C. §103(a)

Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable by US 5,245,155 (Pratt et al.) or US 2004/0191064 (Guo), in view of US 2,288,433 (Boettcher et al) or US 2,662,277 (Stone).

Claim 6 recites a method for joining at least two gas turbine components under dynamic load comprising:

aligning the at least two gas turbine components relative to one another in an aligned position;

joining the at least two gas turbine components together in the aligned position by an auxiliary weld; and

welding the at least two gas turbine components using laser powder build-up welding to form a separate weld to join said at least two gas turbine components together.

The Final Office Action admits that neither Pratt nor Guo shows an auxiliary weld.

With respect to Guo, Guo already has a Z-notch interlock to join the blades. See [0026] of Guo. There is absolutely no reason or motivation to provide such an auxiliary weld. The Examiner's Advisory Action states that such a weld would provide enhance the joining but this is pure conjecture given the interlock already present. The purported aligning in Guo includes interlocking. If interlocking provides the connection, why is an extra weld needed? Even given the teachings of Boettcher and Stone there is no reason for two welds in the surfacing repair method of Guo.

Moreover, the weld repair in Guo mentioned by the Examiner is not for the purpose of

joining the two components together, but rather to resurface the components. See [0026] of Guo.

With respect to Pratt, Pratt uses a fixture for aligning a plurality of pieces of a workpiece and it is respectfully submitted that there is absolutely no reason to use a separate weld. See col. 3, lines 17 to 27 of Pratt. The proper standard for review is, would one of skill in the art, reviewing the prior art, have found it obvious to modify Pratt to provide an extra weld. It is respectfully submitted, that Pratt only wants or desires one weld, and needs no aligning weld, as such a weld would be superfluous to the aligning fixture. Pratt has a fixture 24 that completely supports the complex workpiece shape during welding. See col. 3, lines 17 to 29 of Pratt.

There is simply no reason or motivation to remove or alter the aligning device in Pratt, and one of skill in the art, it is respectfully submitted, would not have done so in view of either Boetcher or Stone, or any other piece of prior art, as the aligning fixture for the complex shape already performs this function.

Withdrawal of the rejections to claim 6 under 35 U.S.C. §103(a) thus is respectfully requested.

Claim 8 was rejected under 35 U.S.C. §103(a) as being unpatentable over Pratt et al. or Guo, in view of Boetcher et al. or Stone as applied to claim 6, and further in view of US 4,224,499 (Jones) or US 2004/0169022 (Mega).

In view of the above, withdrawal of the rejections to claim 8 under 35 U.S.C. §103(a) thus is respectfully requested.

Claim 9: ARGUED SEPARATELY

Claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over Pratt or Guo in view of Boetcher or Stone as applied to claim 6, and further in view of US 2,492,833 (Baumann) or US 2,200,287 (Lysholm).

Claim 9 recites the method as recited in Claim 6, wherein the at least two gas turbine components comprise at least two rotor discs of a compressor rotor or a turbine rotor, each of the at least two rotor discs including an axially extending flange; and wherein the step of welding

joins together the at least two rotor discs at said axially extending flanges of said at least two rotor discs.

With further respect to claim 9, it is respectfully submitted that it would not have been obvious to modify either Pratt nor Guo with Baumann or Lysholm, as Pratt has an aligning device which does not appear suitable for such flanges and Guo is concerned with a repair method only, which is not applicable to such flanges.

Withdrawal of the rejections to claim 9 under 35 U.S.C. §103(a) thus is respectfully requested.

Claim 10: ARGUED SEPARATELY

Claims 10 and 11 was rejected under 35 U.S.C. §103(a) as being unpatentable over Pratt et al. or Guo in view of Boetcher or Stone as applied to claim 6, and further in view of Baumann or Lysholm.

Claim 10 recites the method as recited in Claim 6, wherein the at least two gas turbine components comprise at least two rotor discs of a compressor rotor or a turbine rotor, each of the at least two rotor discs including an axially extending flange;

wherein the step of aligning includes axially aligning the axially extending flanges;

wherein the step of joining comprises forming the auxiliary weld at an intersection of the axially extending flanges;

and wherein the step of welding joins together the at least two rotor discs at said axially extending flanges of said at least two rotor discs.

With further respect to claim 10, it is respectfully submitted that it would not have been obvious to modify either Pratt nor Guo as asserted, as Pratt has an aligning device which does not appear suitable for such flanges and Guo is concerned with a repair method only, which is not applicable to such flanges.

Withdrawal of the rejections to claim 10 and 11 under 35 U.S.C. §103(a) thus is respectfully requested.

Claim 11: ARGUED SEPARATELY

Claim 11 recites the method of claim 10, wherein the axially extending flanges of said at least two rotor discs, when aligned, form a pool crater for the laser powder build up welding.

None of the references disclose such a claimed pool crater, and the Office Action does not identify any. Withdrawal of the rejection to claim 11 is respectfully requested for this reason as well.

CONCLUSION

It is respectfully submitted that the application is in condition for allowance. Favorable consideration of this appeal brief is respectfully requested.

Respectfully submitted,

DAVIDSON, DAVIDSON & KAPPEL, LLC

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By: 
William C. Gehris, Reg. No. 38,156

DAVIDSON, DAVIDSON & KAPPEL, LLC
485 Seventh Avenue, 14th Floor
New York, NY 10018
Tel: (212) 736-1940
Fax: (212) 736-2427



APPENDIX A:

**PENDING CLAIMS 6 and 8 TO 11
U.S. APPLICATION SERIAL NO. 10/588,538**

Claim 6 (previously presented): A method for joining at least two gas turbine components under dynamic load comprising:

aligning the at least two gas turbine components relative to one another in an aligned position;

joining the at least two gas turbine components together in the aligned position by an auxiliary weld; and

welding the at least two gas turbine components using laser powder build-up welding to form a separate weld to join said at least two gas turbine components together.

Claim 8 (previously presented): The method as recited in Claim 6, wherein the auxiliary weld is produced by laser welding or electron-beam welding.

Claim 9 (previously presented): The method as recited in Claim 6, wherein the at least two gas turbine components comprise at least two rotor discs of a compressor rotor or a turbine rotor, each of the at least two rotor discs including an axially extending flange; and wherein the step of welding joins together the at least two rotor discs at said axially extending flanges of said at least two rotor discs.

Claim 10 (previously presented): The method as recited in Claim 6, wherein the at least two gas turbine components comprise at least two rotor discs of a compressor rotor or a turbine rotor, each of the at least two rotor discs including an axially extending flange;

wherein the step of aligning includes axially aligning the axially extending flanges;

wherein the step of joining comprises forming the auxiliary weld at an intersection of the axially extending flanges;

and wherein the step of welding joins together the at least two rotor discs at said axially extending flanges of said at least two rotor discs.

Claim 11 (previously presented): The method of claim 10, wherein the axially extending flanges of said at least two rotor discs, when aligned, form a pool crater for the laser powder build up welding.

APPENDIX B

Evidence Appendix under 37 C.F.R. §41.37 (c) (ix):

No evidence pursuant to 37 C.F.R. §§1.130, 1.131 or 1.132 and relied upon in the appeal has been submitted by appellants or entered by the examiner.

APPENDIX C

Related proceedings appendix under 37 C.F.R. §41.37 (c) (x):

As stated in “2. RELATED APPEALS AND INTERFERENCES” of this appeal brief, appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board’s decision in this appeal.